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APPLICATION NO.	FI	LING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,466 06/26/200		06/26/2003	Young-Hoon Kim	5000-1-376	6491
33942	7590	07/30/2004		EXAMINER	
CHA & RE	•		WONG, ERIC K		
210 ROUTE PARAMUS,			ART UNIT	PAPER NUMBER	
PARAMUS,	143 0703	52		2883	

DATE MAILED: 07/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

### Diffice Action Summary ### The MAILING DATE of this communication appears on the cover sheet with the correspondence address Period for Reply A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION. Esterminor of time may be available under the provisories of 3 CSR 1.18(a). In no event, however, may a reply be limitly filled If the period for reply specified above is less than thirty (30) days, a reply within the statutory informan of thirty (30) days will be constrained limitly. If the period for reply specified above is less than thirty (30) days, a reply within the statutory informan of thirty (30) days will be constrained limitly. If the period for reply specified above is less than thirty (30) days, a reply within the statutory informan of thirty (30) days will be constrained limitly. If the period for reply specified above is less than thirty (30) days, a reply with the statutory informan of thirty (30) days will be constrained limitly. If the period for reply specified above is less than thirty (30) days, a reply with the statutory informan of thirty (30) days will be constrained limitly. If the period for reply specified sone is less than thirty (30) days, a reply with the statutory informan of thirty (30) days will be constrained in the period of the communication. An experiment the adjustments and statutory period will appear and it is shown that the statutory reply reply and will be constrained in the statutory reply reply and will be constrained in the statutory reply reply and will be constrained and the statutory reply will be constrained in the statutory reply reply and the statutory reply and the statutory reply and the statutory reply reply and the statutory reply reply and the statutory reply and the statutory reply reply reply and the statutory reply and the statutory reply			Application No.	Applicant(s)	ex
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- The MAILING DATE of this communication appears on the cover sheet with the correspondence address — Period for Repty A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION. Estambined for many be syndicide under the provincies of 3 CER 1.136(a), in no event, however, may a reply be finely filed to the province of the province of 3 CER 1.136(a), in no event, however, may a reply be finely filed to the province of the province of 3 CER 1.136(a), in no event, however, may a reply be finely filed to the province of the province of 3 CER 1.136(a), in no event, however, may a reply be finely filed to the province of 3 CER 1.136(a), in no event, however, may a reply be finely filed on the province of 3 CER 1.136(a), in no event, however, may a reply be finely filed on the province of 3 CER 1.136(a), in no event, however, may a reply be finely filed on the province of the prov		Office Action Summary	Examiner	Art Unit	
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THE MAILING DATE OF THIS COMMUNICATION. Eletenism of the many be variable under the provisions of 37 CPR 1.35(b). In no event, however, may a reply be limitly filed after SX (8) MONTHS from the mailing date of this communication. If the period roady specialized store is less than file (70) days, a reply whith the schulary minimum of thiny (30) days at the consciount filency. Failure to reply within the set or extended provided for reply will. by statute, cause the application to become ABANDONED (38 U.S.C.§ 133). Any reply received by the Official ent than there mentions that the braining date of this communication, even if timely filed, may reduce any carrier plant from adjustment. See 37 CPR 1.794(b). Status 1) Responsive to ceremonicetion(5) filed on 21. June 2004. 2a) This action is FINAL. 2b) This action is non-final. 3) Isince this application is in condition for allowance except for formal matters, prosecution as to the mentis is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. Disposition of Claims 4) Claim(s) 1.14 is/are pending in the application. 4a) Of the above claim(s) is/are withdrawn from consideration. 5) Claim(s) 7.9 is/are allowed. 6) Claim(s) 7.9 is/are allowed. 6) Claim(s) 9.6 and 10-14 is/are rejected. 7) Claim(s) 9.6 and 10-14 is/are rejected. 7) Claim(s) 9.6 and 10-14 is/are rejected. 7) The proving of the specification is objected to. 8) Claim(s) 9.6 and 10-14 is/are rejected to. 8) Claim(s) 9.6 and 10-14 is/are rejected to. 8) Claim(s) 9.6 and 10-14 is/are rejected. 7) Applicant may not request that any objection to the drawing(s) be held in aboyance. See 37 CPR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CPR 1.52(d). 11) The cath or declaration is objected to by the Examiner. 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). 3) All Ib) Some *C None of Claim for the priority documents have been received			cation appears on the cover sheet	with the correspondence add	dress
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12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) ☐ All b) ☐ Some * c) ☐ None of: 1. ☐ Certified copies of the priority documents have been received. 2. ☐ Certified copies of the priority documents have been received in Application No 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. Attachment(s) 1) ☑ Notice of References Cited (PTO-892) 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 5) ☐ Notice of Informal Patent Application (PTO-152) Paper No(s)/Mail Date	11)[]	The oath or declaration is objected to	by the Examiner. Note the attach	ed Office Action or form PT	O-152.
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DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to the rejection(s) of claim(s) 1 and 10 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of United States Patent Number 6,563,988 to McGreer.

Drawings

2. The drawings received on 6/21/04 overcome the objections set forth in the previous office action and are accepted by the Examiner.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- 4. Claims 1-5, and 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent Number 6,563,988 to McGreer.

As to claims 1 and 4, McGreer discloses in figure 8, a wavelength division multiplexer/demultiplexer comprising:

A first sub-waveguide having a width that gradually increases in a progressing
direction of an optical signal such that, starting at an input of the sub-waveguide
and with the gradual increase, tapering of the sub-waveguide is directed inwardly
in a concave manner; and

A second sub-waveguide continuously joined to the first sub-waveguide, having a
predetermined shape and a width that linearly decreases in the progressing
direction of the optical signal passing through the first sub-waveguide.

As to claim 2, the apparatus includes a grating (abstract).

As to claim 3, the first sub-waveguide has a parabolic horn shape.

As to claim 5, the second sub-waveguide has a parabolic horn shape.

As to claims 10-14, the wavelength division multiplexer/demultiplexer is used in a PLC having an arrayed waveguide grating and a first and second sub-waveguide continuously joined where the first waveguide has a shape that gradually increases and where the second has a shape that gradually decreases (figure 3, abstract). The inputs and outputs of the PLC are parallel and centered on the arrayed waveguide grating.

Claim Rejections - 35 USC § 103

- 5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over McGreer as applied to claim 1 above, and further in view of applicant's disclosure of prior art.

McGreer discloses a wavelength division multiplexer/demultiplexer wherein a shape of the first sub-waveguide is gradually increasing in shape and a second sub-waveguide gradually decreasing in shape, but fails to explicitly disclose or reasonably suggest the shape defined by the equation as claimed.

Applicant discloses in the disclosure of prior art in equation 2, the equation as claimed in claim 6 and arrayed waveguide gratings (AWG).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the equation and AWG supplied by Applicant's disclosure of prior art in order to supply a flat field profile and to increase the bandwidth of an optical communications line.

Allowable Subject Matter

7. Claims 7-9 are allowable over the prior art of record because the latter, either alone or in combination, does not disclose nor render obvious a wavelength division multiplexer/demultiplexer having a second sub-waveguide with a shape as defined by equation 9 supplied by applicant in combination with the rest of the claimed limitations. Claimes 8-9 are allowed by virtue of dependency.

Conclusion

- 8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
 - a. United States Patent Number 6,049,644 to Dragone for a arrayed waveguide grating with an input having increasing and decreasing shapes.
- 9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Wong whose telephone number is 571-272-2363. The examiner can normally be reached on Monday through Friday, 830AM - 430PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on 571-272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EW

Brian Healy Trimery Francisc